

2075

The Story of Bread

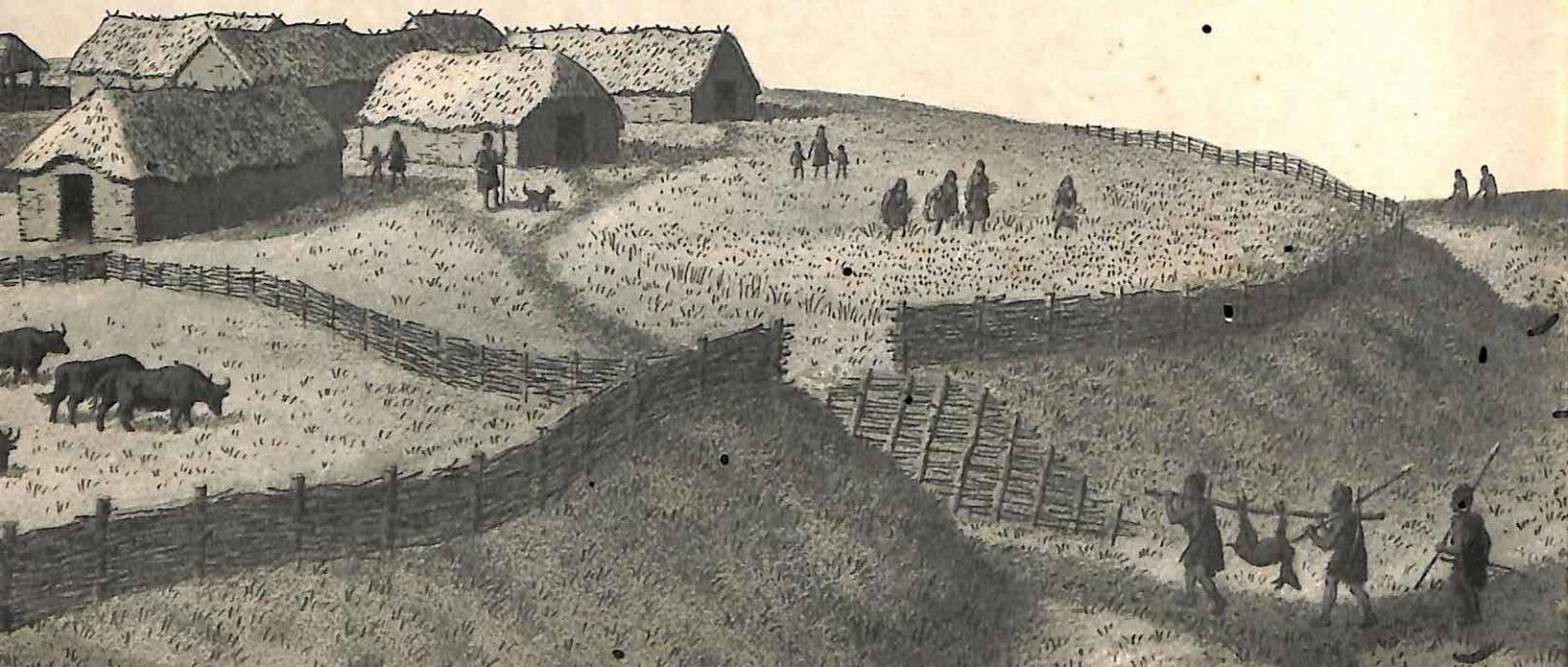
Written by H. J. DEVERSON

Drawn by RONALD LAMPITT



PUFFIN PICTURE BOOKS

The First Breadmakers



TODAY, in the mellow harvest-time the wheatlands stretch out like vast golden carpets to cover the plains. Ships breast the waters of all the Seven Seas to carry the gathered grain from one continent to another. White-clad armies of millers and bakers work to turn the grain into flour and the flour into bread. All over the earth there are hundreds of thousands of Bread-Makers who strive to bring us, every day, the millions of loaves we eat.

But where did the story of bread begin?

It began about 8,000 years ago in the Near East. The first Bread-Makers were people of the New Stone Age who had begun to live together in villages built beside rivers or on the shores of large lakes. In Britain the earliest settlements were often built in the downland country. The Neolithic people grew their own crops and reared cattle. They were

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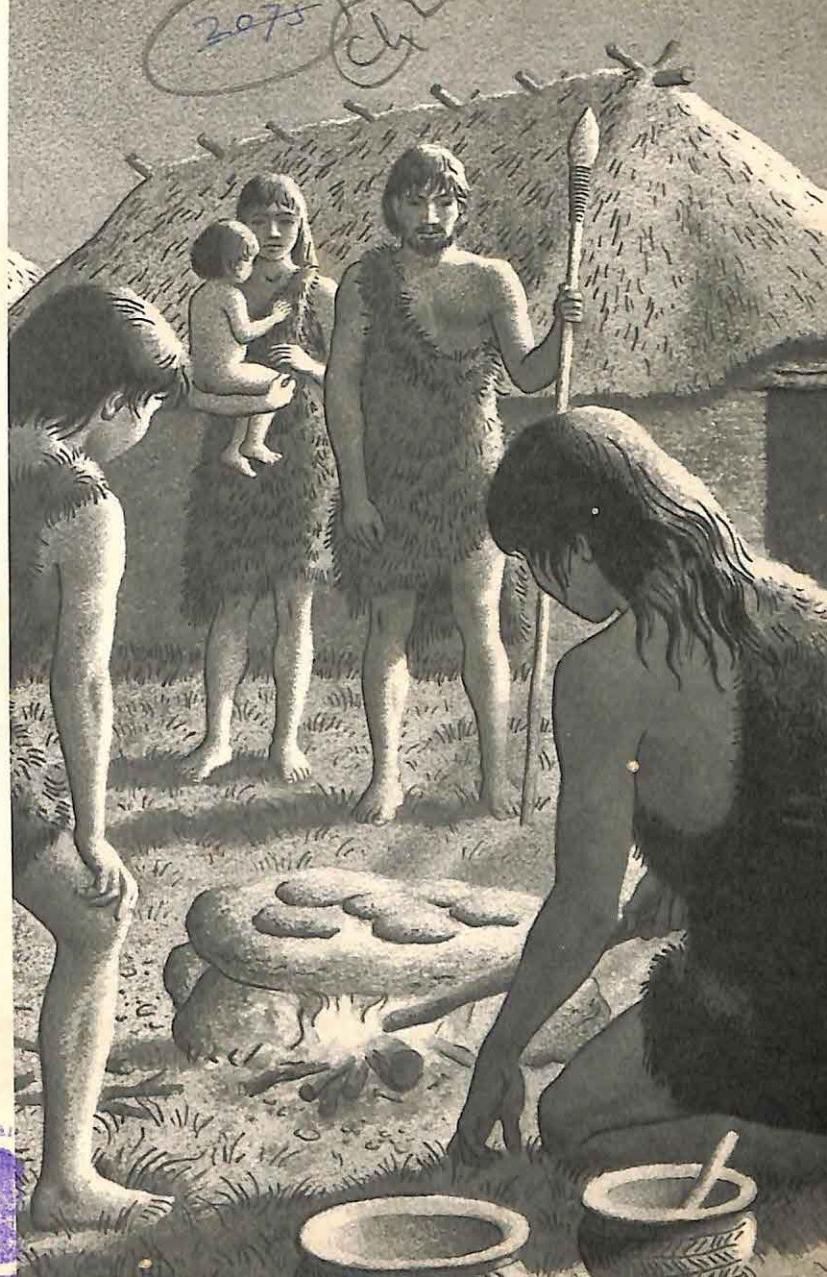
becoming farmers as well as hunters; they had ceased to be restless tribes who had to wander far in search of food. They were discovering how to make stronger and sharper tools from polished flint. These Neolithic people had learned how to build their homes. They set tall poles into the ground to form a frame for their houses and between the poles they threaded thin rods of green wood to make a kind of basket-work screen, called wattle. On both sides of the wattle they smeared wet clay so that when it hardened the houses had a weatherproof surface. The sloping roofs were thatched with straw.

Even before they had settled down, these people must have found out that they could eat the grain of certain kinds of grasses which grew in the wild moorlands. These grasses were the early forms of rye, barley, and wheat. Of course, the grains were very much smaller than those of the cereals we grow today: it must have been a slow and tedious job to collect the small ears and extract enough grain to make even a handful.

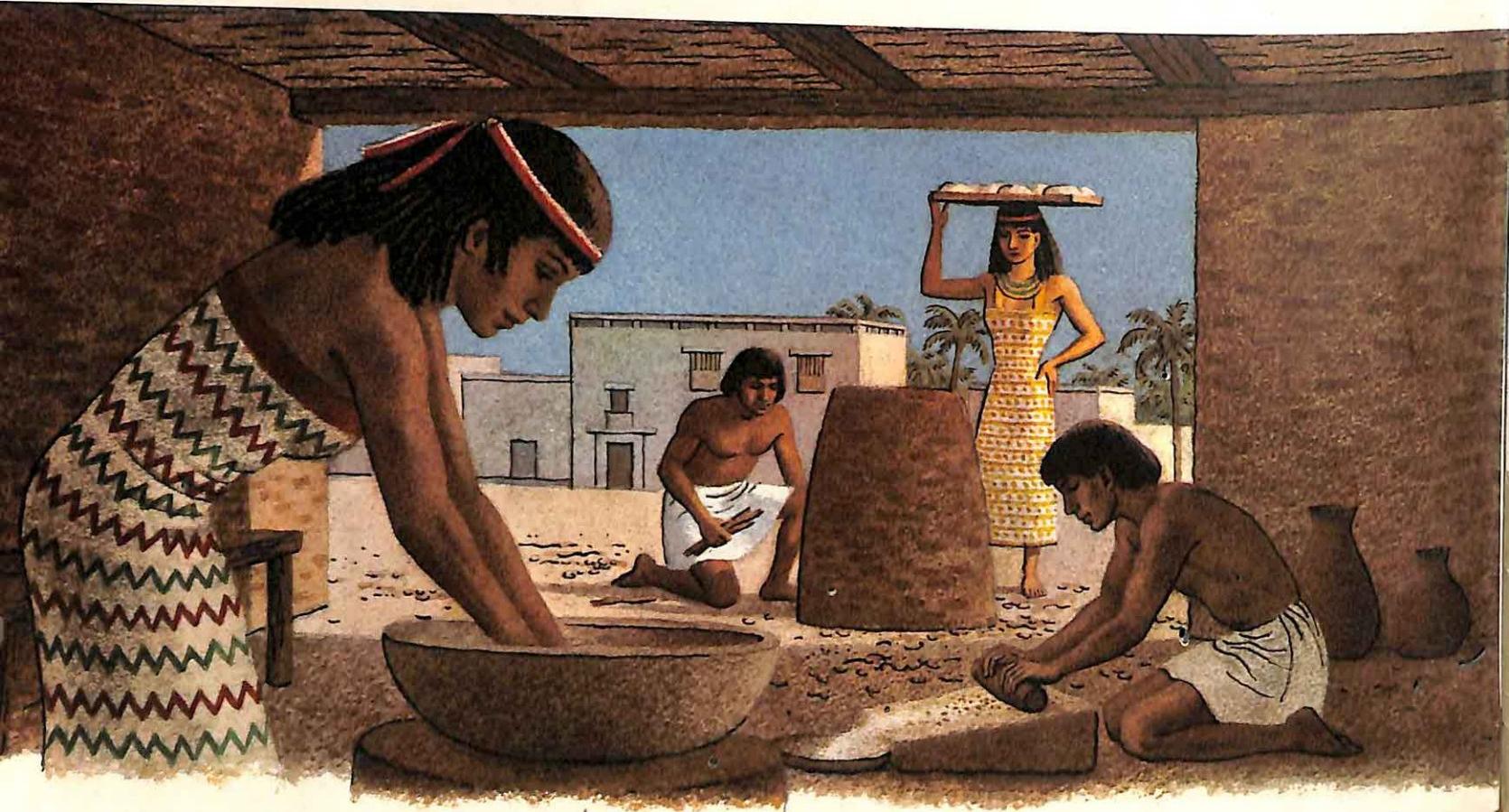
In the early days of their village life the people went out to collect the eatable grass-grains. But later on it seems likely that they found that by saving some of the grain they could sow it to produce their own crops. They cleared strips of land outside the village and used flint-headed hoes to loosen the soil before scattering the seed. When the crop had grown and ripened it was cut with flint-bladed sickles. The women did much of this work while the men were away on hunting expeditions.

After the harvest had been brought in the grain was crushed between stones into a rough kind of flour. When baking-day came, the women mixed a portion of the flour with water to make a thick paste and this they patted into a number of flat cakes. Meanwhile, a fire had been lighted under a thin slab of rock, and, when the rock had become well heated, the cakes were placed on it until they were cooked through.

So, we think, was the first bread made in those far-off days. And if it did not taste so good as it does today we can be sure that Neolithic Man made no complaint!



In the Land of the Bread-Eaters



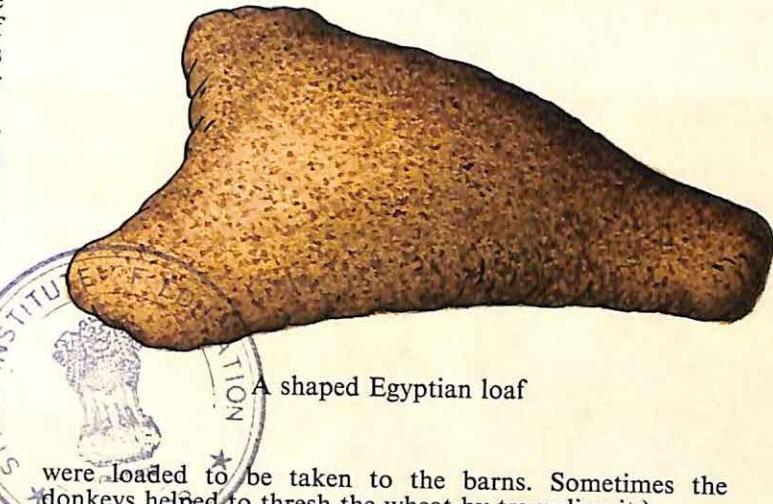
In the bakery of an Egyptian official's household: a youth grinds corn with a rough stone roller and a girl kneads dough in a stone bowl. While the fire is being tended another girl waits with a tray of dough for the oven

U.S.A.Y. V.E. ABRAHAM
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The ancient Egyptians were known as 'The Bread-Eaters'. Every year the king would say to his priests: 'Look into the future and tell me when the summer rains will come. Tell me if the waters of the Nile will flow strongly and bring richness to our fields so that our harvest may be plentiful and our granaries bursting with grain.'

And when the monsoon rains *did* come and the river overflowed its banks and spilled into the canals that were cut into the fields of the valley there was great happiness in the land. As soon as the waters subsided, the farmers yoked their oxen and ploughed the soft earth, then hoed it and sowed their seed.

When the wheat had grown and the ears were full and ripe the king would be carried in his litter to one of the fields. There he would be set down so that he could cut the first sheaf with a golden sickle. This was the signal for the reapers to set to work up and down the great valley. (It was a busy time for the donkeys too, on whose backs the sheaves



were loaded to be taken to the barns. Sometimes the donkeys helped to thresh the wheat by trampling it.)

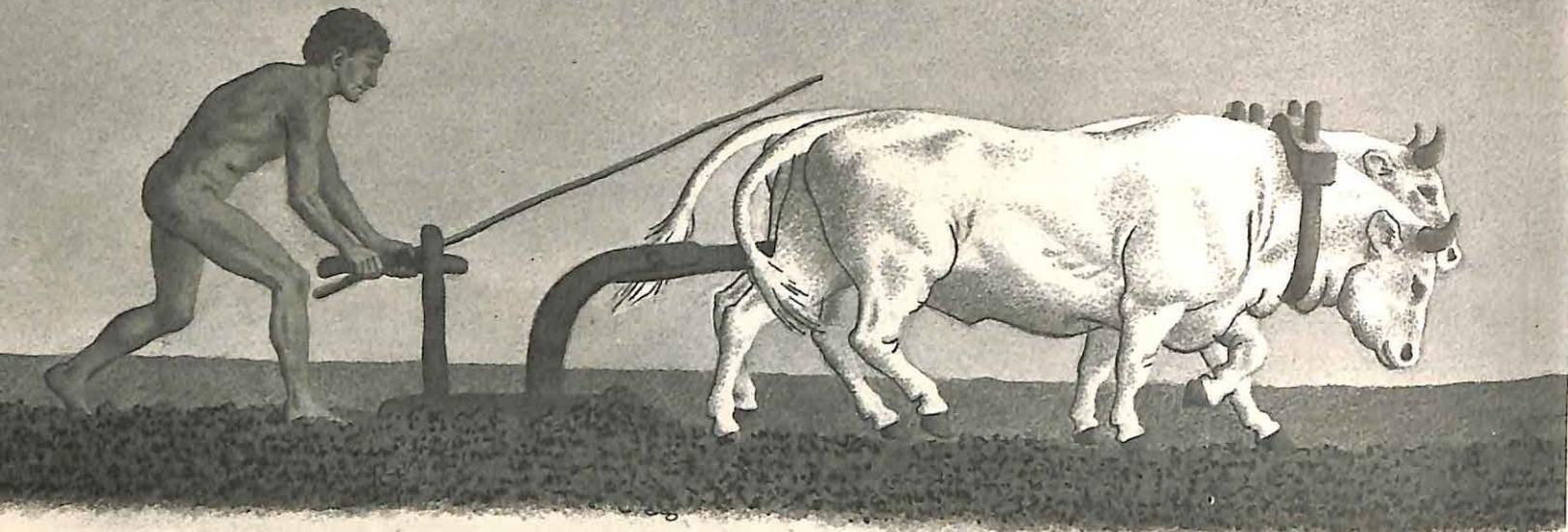
When the sheaves had been gathered in and dried and threshed, and when the chaff had been winnowed away, the grain was poured into the king's granaries. These store-houses were jealously guarded, for the Egyptians knew that they must save some of the crop to use another year when the rains might fail and the harvest be a poor one.

After grinding the corn and kneading the flour into dough, the Egyptians added yeast so that the loaves would rise during the baking. In the courtyards of their houses they built cone-shaped ovens of bricks made from the Nile clay. The ovens were divided inside by a partition between the fire-box at the bottom and the baking area at the top. In household bakeries such as the one shown in our picture many kinds of loaves were made. Sometimes they were spiced with poppy-seeds or camphor.

In the king's own bakehouses so much bread was required that, to save time, the palace slaves kneaded the dough by treading barefoot on great mounds of it!



Emmer – the wheat of Ancient Egypt



The Goddess of the Corn

From earliest times, the growing of corn has been bound up with magic and myths. Long ago in ancient Greece the peasants wore no clothes when they ploughed the fields, for it was thought that nothing should come between men and the soil if the fields were to become fruitful at harvest time.

Among the Greek gods and goddesses who lived above the clouds on Mount Olympus there was one who watched over all growing things. She was Demeter, whose hair was as golden as ripe corn. It was she, the Greeks believed, who first taught men to gather the wild grain and to save it for sowing their own crops. They said that in the beginning Demeter caused the plants to grow all through the year so

that there was no winter when the fields were cold and bare. Then came a change.

Demeter had a daughter called Persephone. One day Persephone had wandered off to pluck flowers in a meadow at the foot of Olympus when Pluto, the gloomy lord of the underworld, rode by and swept her into his chariot. His plunging horses carried her down, deep down, into his dark kingdom.

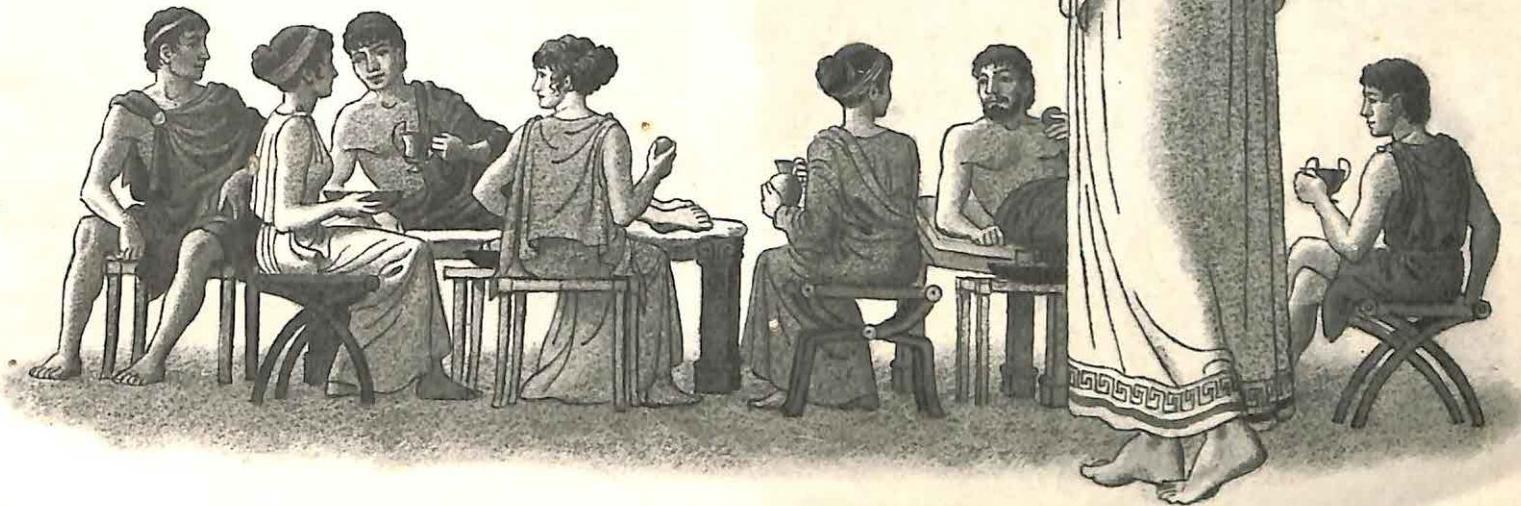
When Demeter found out what had happened to her daughter she vowed that nothing would grow again on earth unless Persephone was rescued from Pluto's power. She appealed to Zeus, the most powerful god of them all.

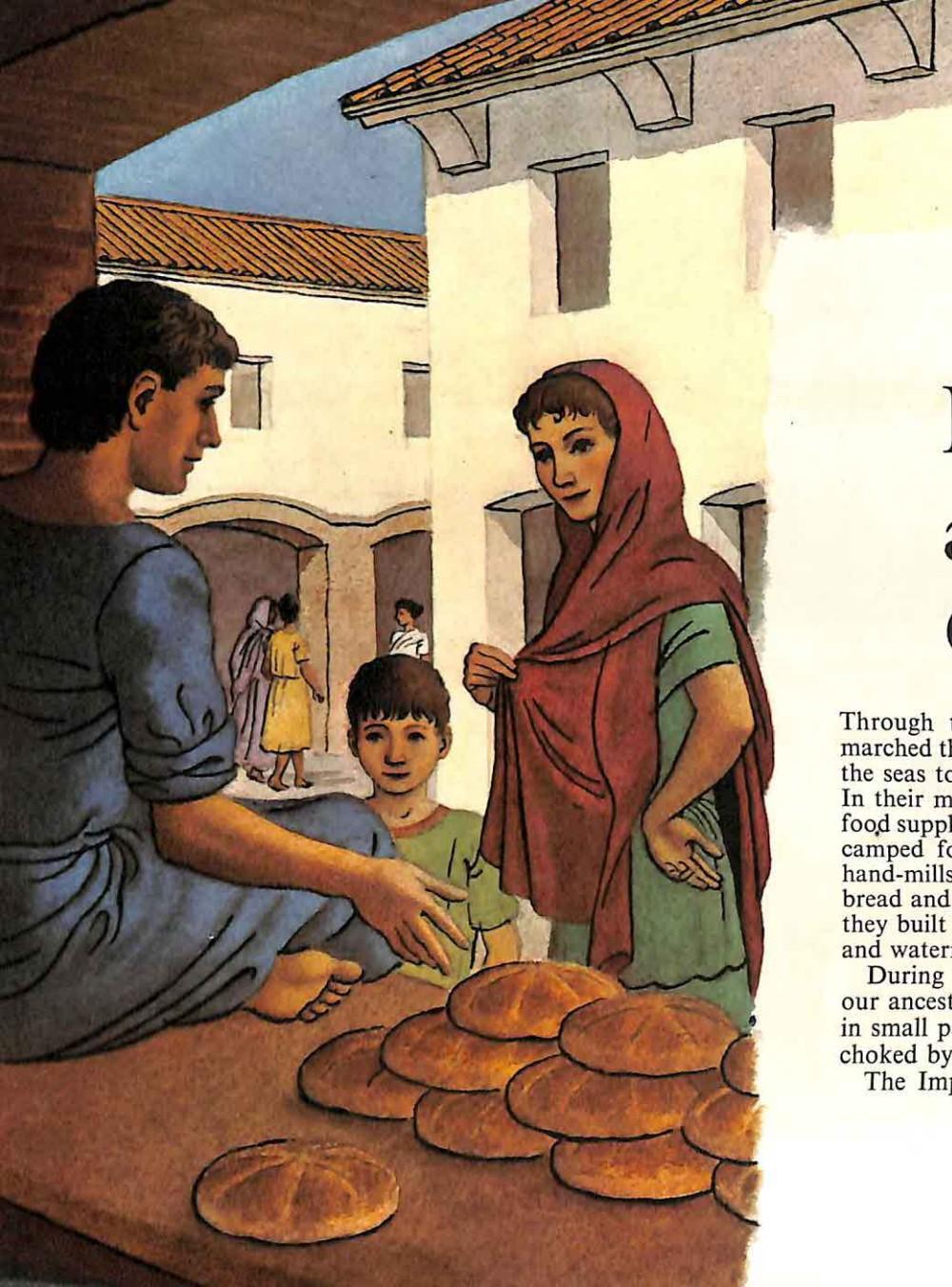
But Zeus was slow to act. Demeter carried out her threat. All growing things shrivelled and died: all the land became barren. Before long there would be no food. Men and beasts would hunger and perish. So at last Zeus stirred himself and sternly ordered Pluto to send Persephone back to Olympus.

Pluto had to obey. But before he did so he gave Persephone a pomegranate to eat – for he knew that once she had swallowed food in the underworld she would have to return every year . . .

As soon as Persephone was restored to her mother the earth became abundant again with fruit and flowers, vines and vegetables, and the golden waving corn. But because Persephone had to return to Pluto's underworld for one-third of every year, this was the time when Demeter's curse came back to the land – the time of winter when the fields become dark and cold and bare.

The Greeks were mighty seafarers and were able to bring in cargoes of grain from Sicily and Egypt to add to their home-grown stores. The loaves they baked were round and flat and could be rolled like manuscripts for serving at their banquets. And when they ate them, the Greeks gave thanks to Demeter, the Corn Goddess and the Giver of Bread.





Bread and Circuses

Through the plains and the forests and over the hills marched the legions of Imperial Rome, across the rivers and the seas to spread their conquests to all the known world. In their mule-drawn baggage trains they carried their own food supplies: corn and wine and oil for cooking. When they camped for the night the soldiers used their own rotary hand-mills to grind the corn ration into flour to make into bread and biscuits. In their forts in the lands they occupied they built granaries and bakehouses and used donkey-mills and watermills for corn-grinding.

During the 350 years they ruled in Britain they taught our ancestors how to grow wheat in open fields instead of in small patches, and how to protect the crops from being choked by weeds.

The Imperial City itself needed vast stores of grain to

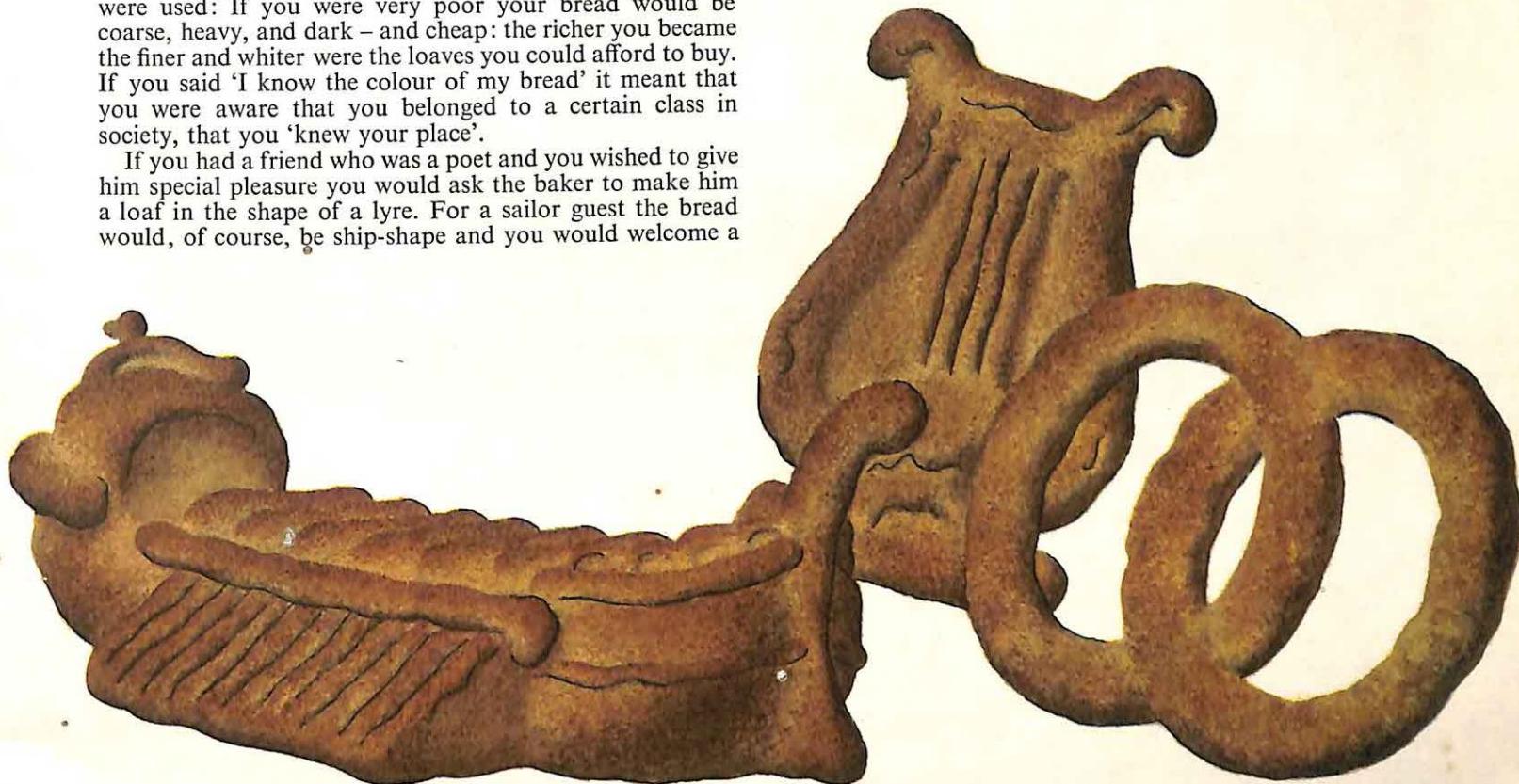
feed the armies and the teeming population. At a time when an emperor could speak of giving people plenty of bread and circuses to keep them from grumbling, the loaves meant very much more than the chariot races and the fights of the gladiators.

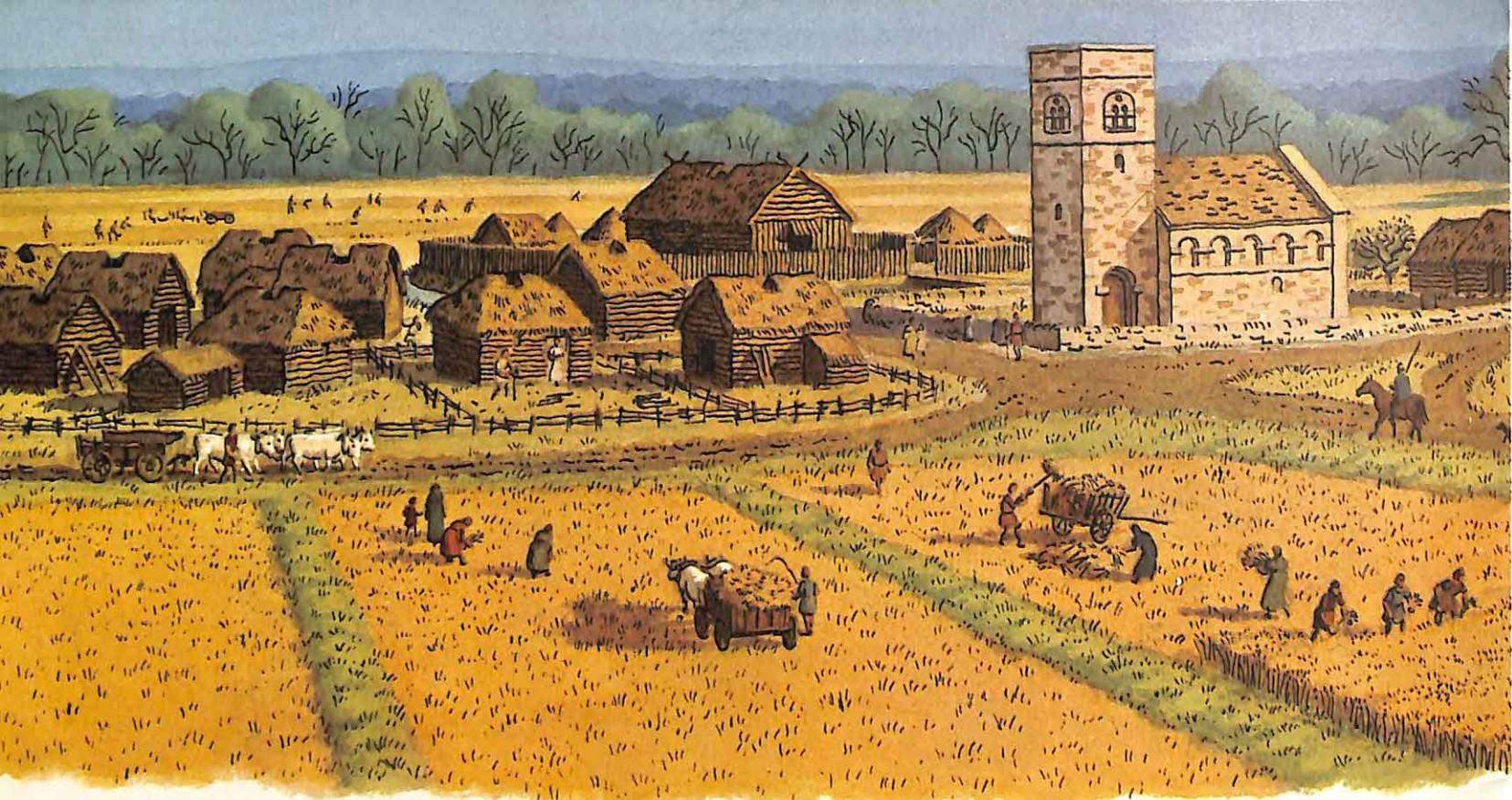
The Romans were the first people to have bakers' shops where the citizens could buy bread and rolls from stalls set out in front of the bakeries. Many different grades of flour were used: If you were very poor your bread would be coarse, heavy, and dark – and cheap: the richer you became the finer and whiter were the loaves you could afford to buy. If you said 'I know the colour of my bread' it meant that you were aware that you belonged to a certain class in society, that you 'knew your place'.

If you had a friend who was a poet and you wished to give him special pleasure you would ask the baker to make him a loaf in the shape of a lyre. For a sailor guest the bread would, of course, be ship-shape and you would welcome a

bridal couple to your table by placing before them loaves of interlocking rings.

In time the bakers formed a guild and were given special privileges as their work was important to the state. They believed that the goddess Fornax watched over their baking ovens, so many of them had pictures of her painted on the walls of their shops.

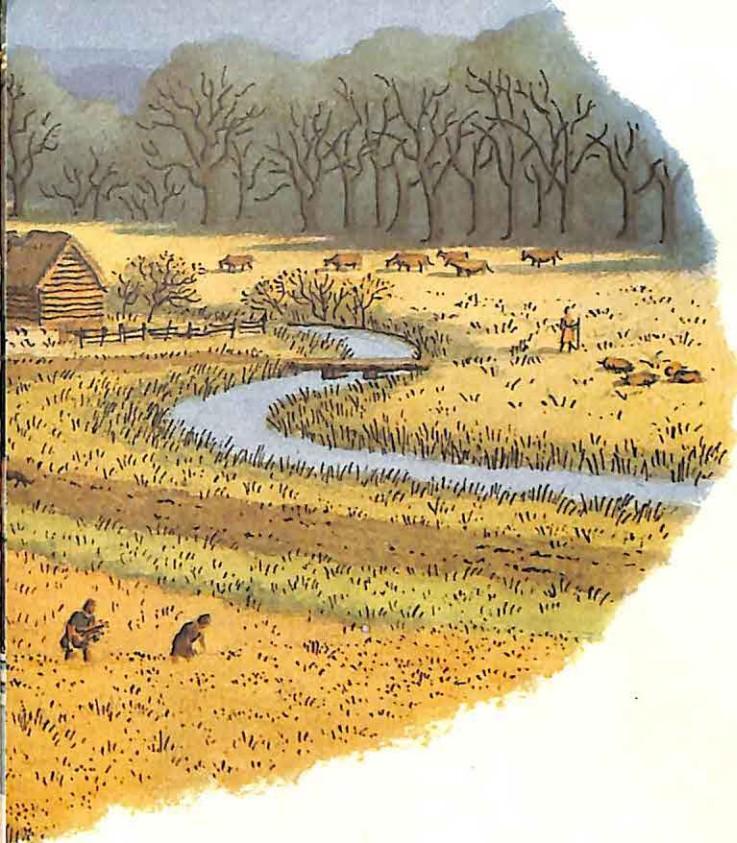




Anglo-Saxon Harvest

Imagine that you are living in this Anglo-Saxon village over a thousand years ago. You can see how the huts of the villagers cluster round the stone church. Outside the village there are three big 'open fields' that belong to the villagers

as a whole. In all these unfenced fields your father owns a number of long narrow strips of land which he and the rest of the family plough, sow, and reap. At harvest time, as soon as you are old enough you will help too, to cut the corn and load the sheaves into the bullock cart so that they can be carried to the family barn. Later on you will help to thresh the ears of corn with a flail so that the grain can be sent to the village miller to be ground into flour. Across the stream there is the 'common land' where your father's cattle and sheep graze and where his pigs snuffle and grunt as they root for food. Some of the village children help to tend the cattle and to make sure that they do not wander across the bridge to eat the growing crops.



In Saxon times most villages were planned in this way. We call their plan the 'three-field' system. Each year one of the three big fields would be allowed to lie fallow: it would not be ploughed or planted with crops. After its year's rest the field would be planted with wheat by each family owning strips in it. After the harvest the cattle would be let on to the field to feed on the stubble. In the third year the field would grow different crops – perhaps barley, cabbages, and beans – before it had its year of rest once more. So, every year, there were two open fields where the villagers grew corn and vegetables for their own food.

In villages built near a flowing stream the miller might have a watermill for grinding the corn. He would keep back a

portion of the corn for himself in payment for his services. When the corn came back from the miller each family baked its own bread. In larger villages the corn often had to be taken for grinding to the abbot of the nearby monastery and the bread had to be baked in his ovens.

(Perhaps you have sometimes had a dinner of bacon, beans, and bread? If so, it is strange to think that, if you *had* lived a thousand years ago in an Anglo-Saxon village you could have had just such a meal!)



The Coming of the Windmill

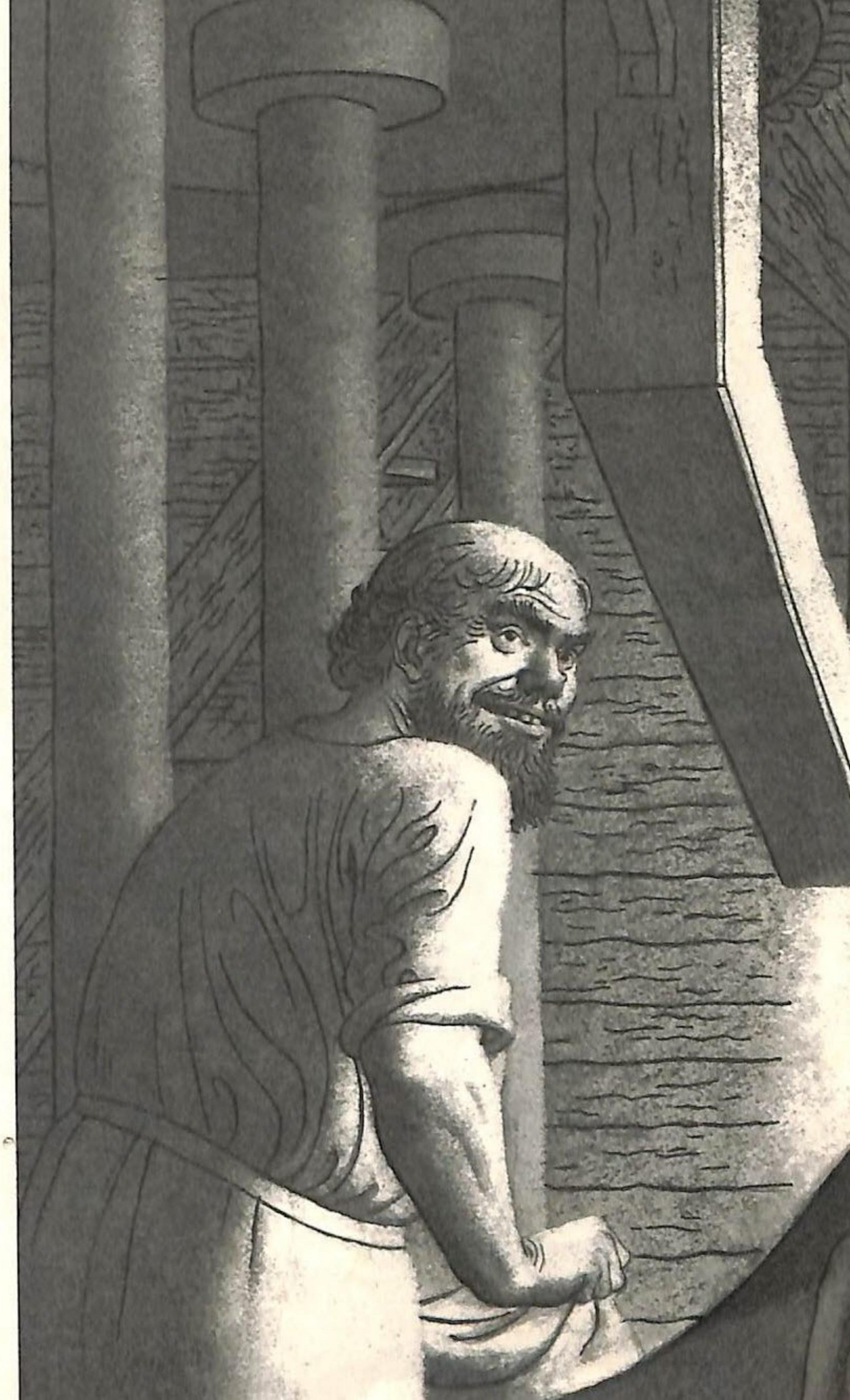


When William the Conqueror ordered the great survey called the Doomsday Book it was found that there were over 7,500 watermills at work in our country. Then, during the reign of Richard the Lion Heart at the end of the twelfth century, wonderful new machines were built to bring another kind of power to the miller. They were the windmills which made use of air currents instead of water currents to turn the millstones.

The earliest windmills were called post mills because of the stout central post upon which they revolved. Their four great sails were fitted into a structure that looked like a wooden house built up on stone or brick supports. The millwrights made the post mills very cleverly so that the whole of the 'house' could be turned round. So, no matter from which direction the wind was blowing, the sails could always be set to face into the breeze. By levering the tail-pole (which you see on the right in our picture), the miller could raise the steps that led to the door of the mill, then push or lean on the pole until the mill was moved bodily into the right direction. The stronger the wind the more merrily would the sails sweep round, so the miller had sometimes to 'reef' the sails to check their pace.

The mill had three storeys. The sacks of corn were hoisted to the top floor and poured into bins through which they passed to the floor below. There they entered a hole in the middle of the upper millstone. Both the stones were grooved and as the upper stone revolved on top of the lower fixed stone the corn was crushed between them and was carried to the outer edges of the stones as coarse flour, or meal. The flour then passed down through spouts to the lowest floor into bins, ready to be put into sacks. As time went on other kinds of windmills were invented. On page 19 we show you a diagram which will help you to understand how the windmill worked.

Chaucer's Miller: 'big-boned,
thick-necked, a tufted wart on
his nose'





Armorial Bearings of The Worshipful Company of Bakers. Beginning as an organized body in the twelfth century this company was confirmed by royal charter in 1486

Rough Justice for a Cheat

In the Middle Ages the miller and the baker had plenty of work to do, and so did the watermill and the windmill. For now there were many more people living in our country – and they all needed bread.

Yet the miller and the baker were not always popular. In his *Canterbury Tales*, Geoffrey Chaucer describes the miller as one who knew well how to steal corn and to take three times his proper due. The miller of Chaucer's story was big-muscled and big-boned, thick-necked and broad – and a champion wrestler. There wasn't a door that he couldn't heave off its hinges or break down by running at it



with his head. He had a beard as red as a fox and as broad as a spade. He had a tufted wart on his nose, and his nostrils were black and wide. He had a gaping mouth like a great furnace. He was boastful and vulgar in his talk. He wore a white coat with a blue hood and he knew how to play the bagpipes.

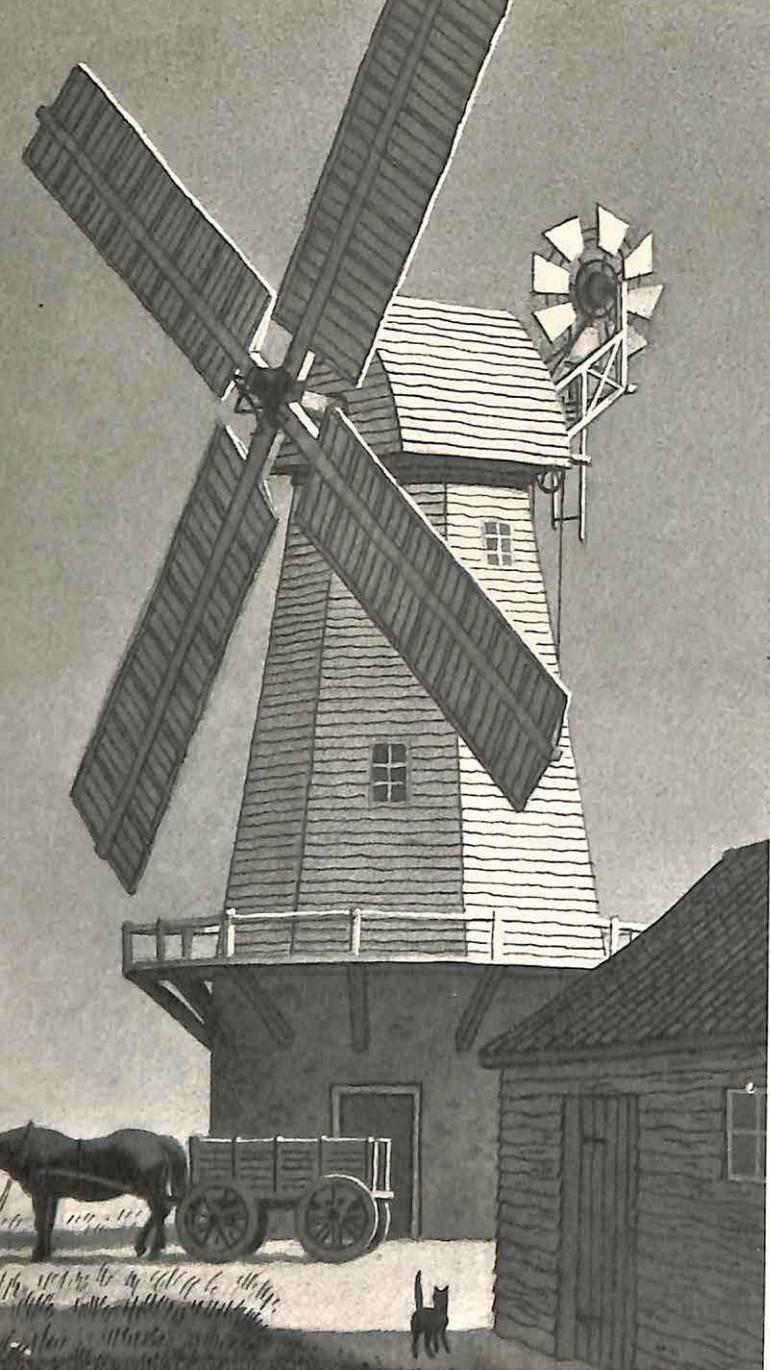
Many people in those days besides Chaucer were all too ready to accuse the miller of stealing. The only way to get your corn ground was to send it to the miller. He was entitled to take a small fixed portion of the corn in payment for his services but was often suspected of taking more than his fair share. As it was very difficult to tell exactly how much flour would result from so much corn, it was easy for the miller to cheat – or to be wrongly accused of doing so.

The baker, too, was watched very carefully. If you thought that he had slyly cut off a lump of the dough you had sent him to bake before he put it in his oven, you

would call him a rogue and tell all your neighbours that he was not to be trusted.

Bread was sold by weight, so sometimes the baker was discovered to be selling shortweight. Or perhaps he would be suspected of using inferior or mouldy flour in his loaves. If it could be proved that he had cheated he would be punished by being hauled through the streets on a hurdle with one of his loaves tied round his neck. He would be locked in the pillory for the rest of the day, there to repent of his roguery while his vengeful customers hurled insults and even more hurtful things at his head.

The bakers had their own craft guild which tried to prevent dishonest trading among its members. Guild inspectors would call on the bakers without warning to test the quality of their bread and to see if their scales gave a true balance. The guilds would also defend any of its members who were thought to have been wrongly accused.



England 'under sail'

When the Duke of Wellington defeated the French at Waterloo, there were ten thousand windmills working in England. William Cobbett wrote that at Ipswich 'the windmills on the hills are so numerous that I counted whilst standing in one place, no less than seventeen'.

By this time the smock mill and the tower mill had been invented. Unlike the old post mill these newer types were built so that the main body of the mill remained stationary, with only the cap, or top section which carried the sails, revolving in the wind.

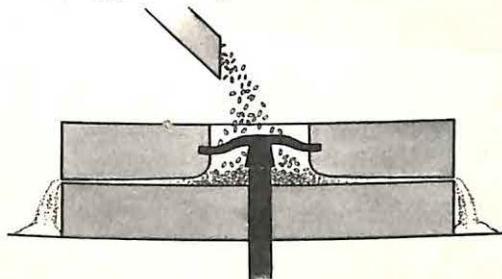
An ingenious means of rotating the cap was found when the famous millwright Andrew Meikle invented the fan-tail. This was like a miniature windmill fitted on the cap at right angles to the main sails. When the wind was in the direction to set the vanes of the fan-tail turning, the geared mechanism moved the cap round until the main sails were facing into the wind.

The design of the sails, too, was improved. They were fitted with slats operating like Venetian blinds which were opened by the pressure of the wind and thus checked the speed at which the sails turned. This and other ways of automatic braking were a great boon to the miller. In the old days of the post mill he had only clumsy and often dangerous methods of fighting a too-strong wind. Mills often caught fire owing to the friction set up when ferocious winds caused the sails to swing round at a reckless pace.

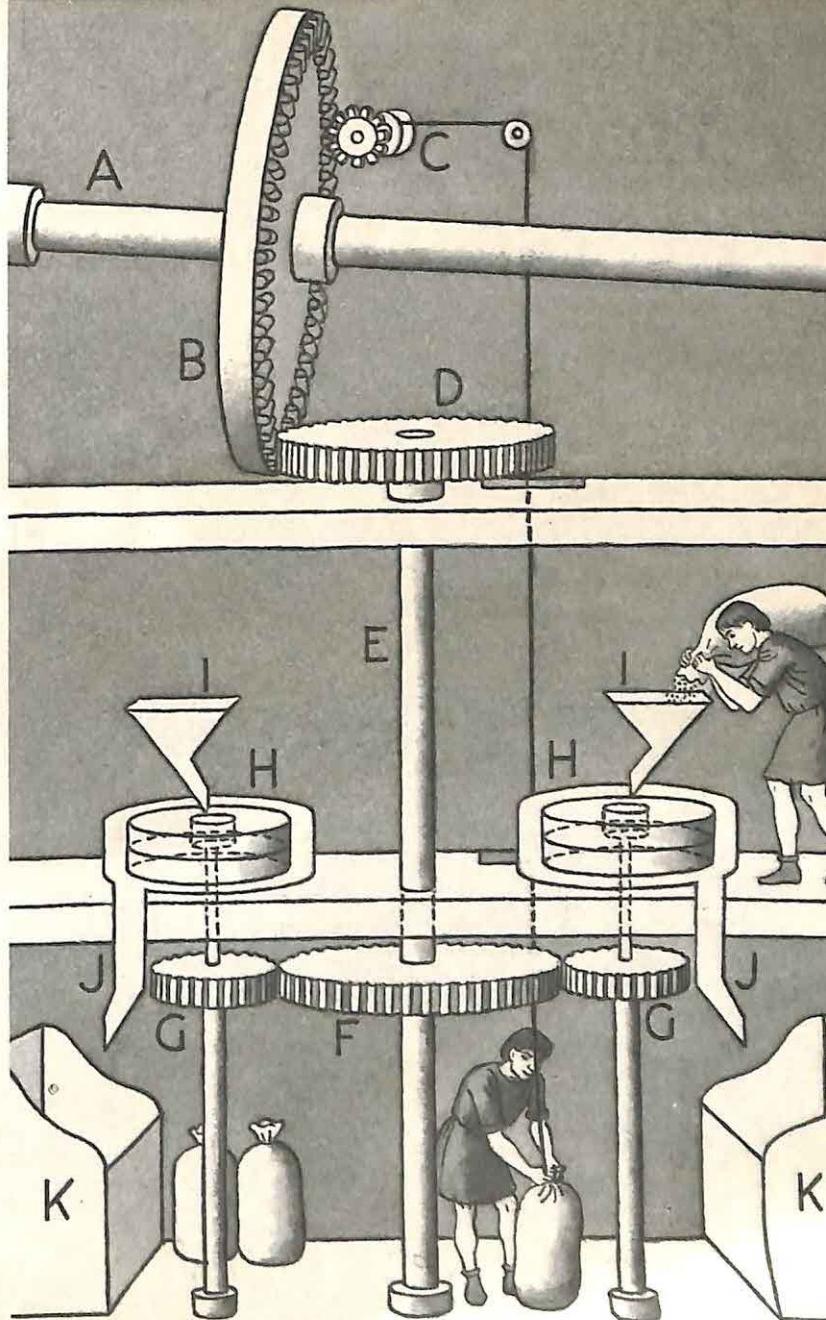
A smock mill showing the fan-tail which turned the main sails into the wind

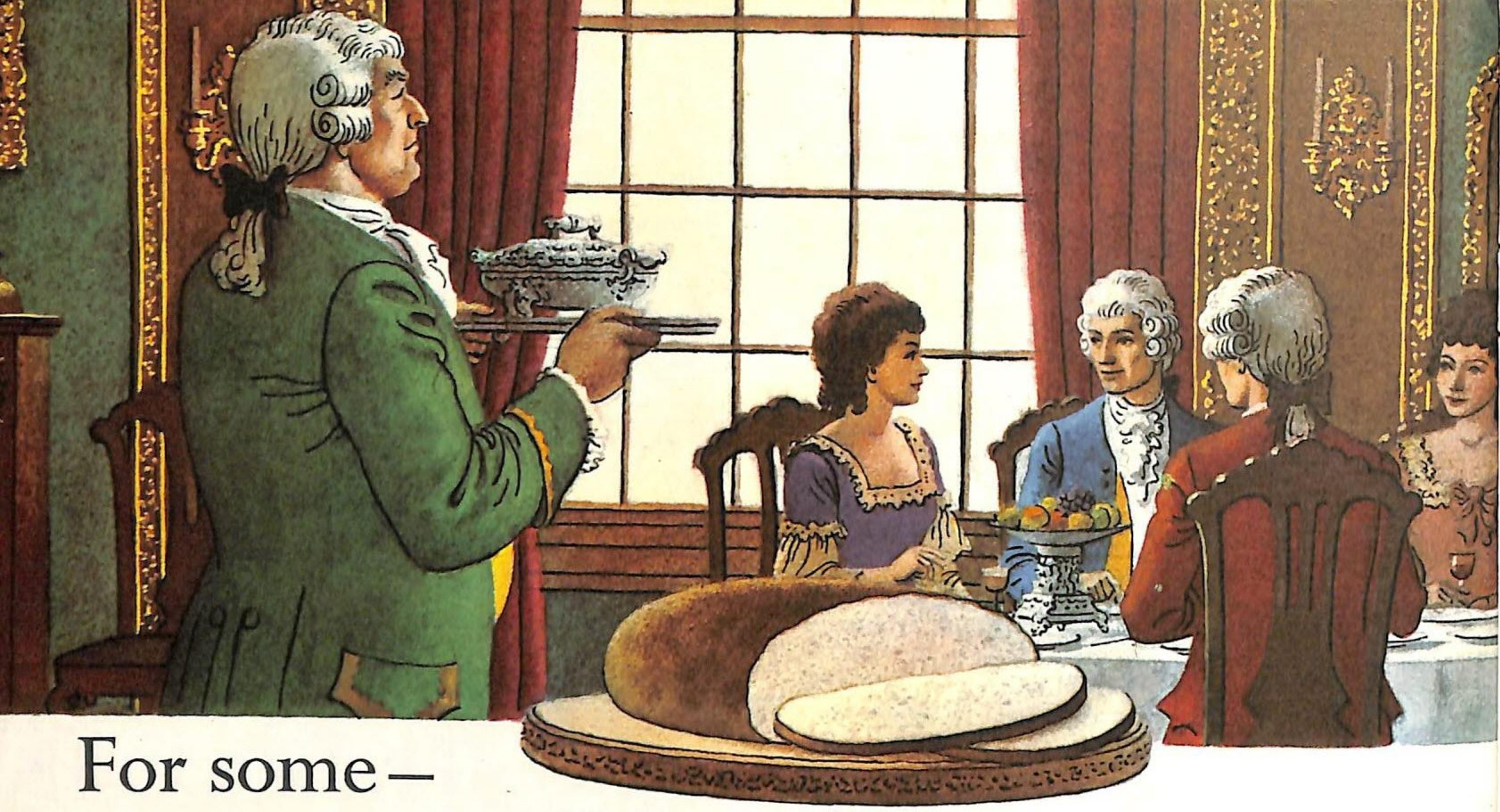
HOW THE WINDMILL WORKED

- A THE WINDSHAFT extended from the sails into the mill. It was slightly sloped to help take the weight of the sails.
- B THE HEAD WHEEL with its wooden teeth engaged another toothed wheel set horizontally. (A handbrake was fitted to the head wheel.)
- C THE SACK HOIST was driven off the head wheel to lift sacks of corn through holes in the floor to be fed to the hoppers.
- D THE WALLOWER, the large toothed wheel which turned the vertical shaft.
- E THE VERTICAL SHAFT extended to the lower floors to rotate the GREAT WHEEL F.
- F THE GREAT WHEEL.
- G GEAR WHEELS turned a short shaft extending through a hole in the lower millstone and anchored to the upper millstone by a bar fixed across the cavity in the centre.
- H THE MILLSTONES. The lower stone, called the bed stone, remained stationary. The shaft passed through it to turn the upper stone, the runner-stone.



- I HOPPERS fed grain into the cavity (or eye) in the centre of the runner-stone.
- J SPOUTS carried the flour from the millstones to the meal bins K.
(Of course, there were wooden steps or ladders in the mill so that the miller could move from floor to floor.)





For some— the hungry years

Throughout our history the price of bread has had a very great importance. From the Middle Ages there was a law known as the Assize of Bread. Local courts passed regulations of all kinds on the quality of bread and how it should be baked. These courts also decided on the weight of bread that was to be sold for a penny or a halfpenny. In 1329 the people of London could buy for their penny the coarse household loaf weighing 7 lb. 11 oz., or the better quality wheaten loaf weighing 5 lb. 12 oz., or the 'penny white' weighing 3 lb. 13 oz. Then, and for hundreds of

years afterwards, white bread could be bought only by prosperous people.

It was a problem that faced every king and every parliament to see that there was enough bread to feed our ever-growing population — and that it could be bought at a fair price. In the 'hungry forties' of the nineteenth century the heavy duties which Parliament put on grain brought in from overseas made the price of bread very high. Many poor people could not afford to buy enough for their needs and were brought close to starvation. Angry mobs marched in protest at the Corn Laws that had brought about these troubles. There were ugly riots and the looting of bakers' shops as men grew desperate for bread to feed their families. At last, in 1846, the Corn Laws came to an end and gradually the dark days of the 'hungry forties' were forgotten.

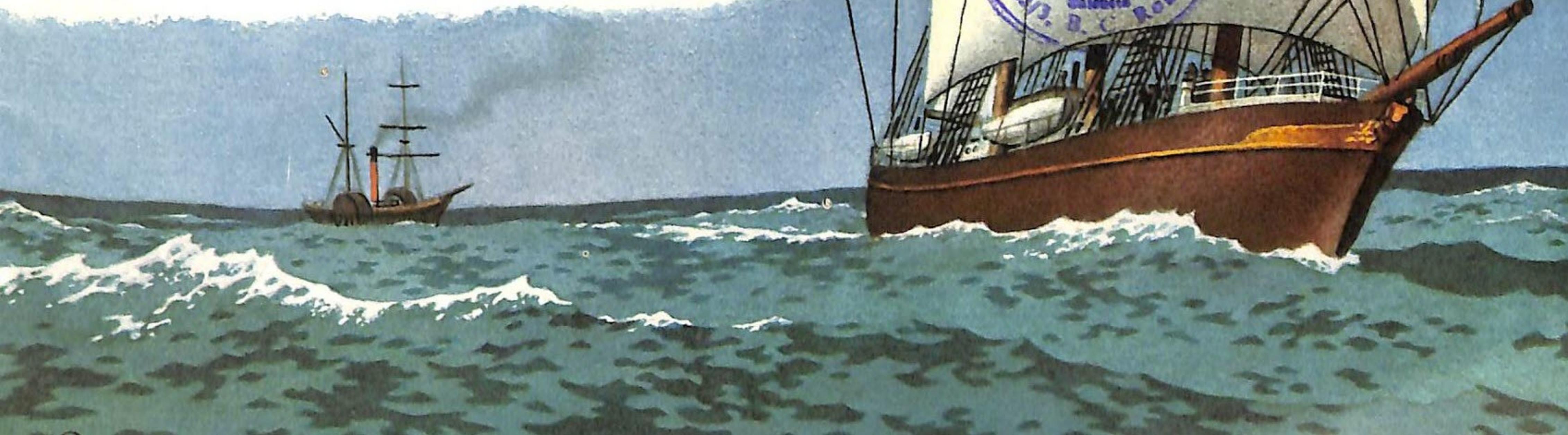
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Grain from the Prairies

It must have been a glorious sight for our great-grandfathers when a full-rigged sailing ship moved gracefully into a bustling English seaport at the end of its long voyage from far-away Australia. These beautiful, fast vessels carried in their holds grain grown in the wide wheatlands down under, to keep our flour-mills busy.

Great ships from Canada, the United States, and the Argentine sailed in, too, for the vast prairielands across the Atlantic were producing ever-increasing harvests of golden grain. New machinery for sowing and reaping was being invented and the railways were stretching out to link the corn-growing areas to the ports. Soon the steamships were replacing the white-sailed grain clippers and bigger cargoes than ever were reaching the markets of Europe. So the New World was becoming the great granary of the Old World.

As time went on we have come to depend more and more on these shipments from overseas, for in our small country there is not enough land to grow all the wheat we need.



The Curious Monk

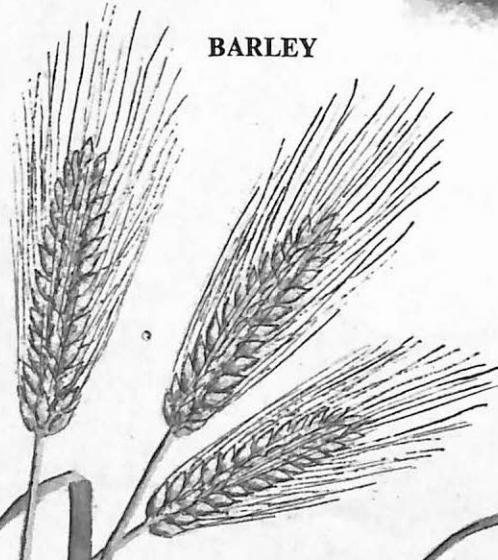
About a hundred years ago in Moravia a monk named Gregor Mendel was spending much of his time in the monastery garden. He was curious to find out more about the way in which plants develop and change from generation to generation. He wanted to discover if man could influence these changes to a greater degree than had so far been possible. He made a great many experiments in 'crossing' two different varieties of peas - that is, by putting pollen



MILLET



BARLEY



WHEAT



from one variety on to the stigma of the other and then carefully noting the differences that developed in the cross-bred, or hybrid, plant as it grew up. After years of careful study and experiment Mendel was able to explain many of the mysteries of the nature of plants.

These discoveries – which we now call Mendelian Laws – have had their effect on the bread we eat. For scientists have looked deeper into Mendel's discoveries and have applied the results to many plants, including wheat. Their researches have made it possible to breed many new varieties of seed so that finer and more abundant crops may be grown. They have learned how to produce seed to suit particular kinds of soil, or which flourishes in hot or cold climates, in wet or dry countries. They have been able to breed seed that has strong resistance to plant diseases. Today these researches go on without ceasing in laboratories and testing grounds all over the world – on a vastly greater scale than those experiments of the inquisitive monk in his quiet monastery garden.

Some facts about wheat

THE MIGHTY GRAIN: The little grain of wheat is packed with the nourishment we need to build our bodies and to keep us healthy and energetic.

WORLD CROP is about 200 million tons a year. If it were all made into bread it would amount to 250,000 million loaves.

EIGHT GREAT BRITAINS – that is the equivalent area covered by the wheatfields of the world: 500 million acres.

THE BREAD-EATERS of the world number more than 1,000 million people, about half the world's population.

YOUR BREAD-BASKET: Each year you eat nearly twice your own weight in bread: about 2 cwt.

OATS

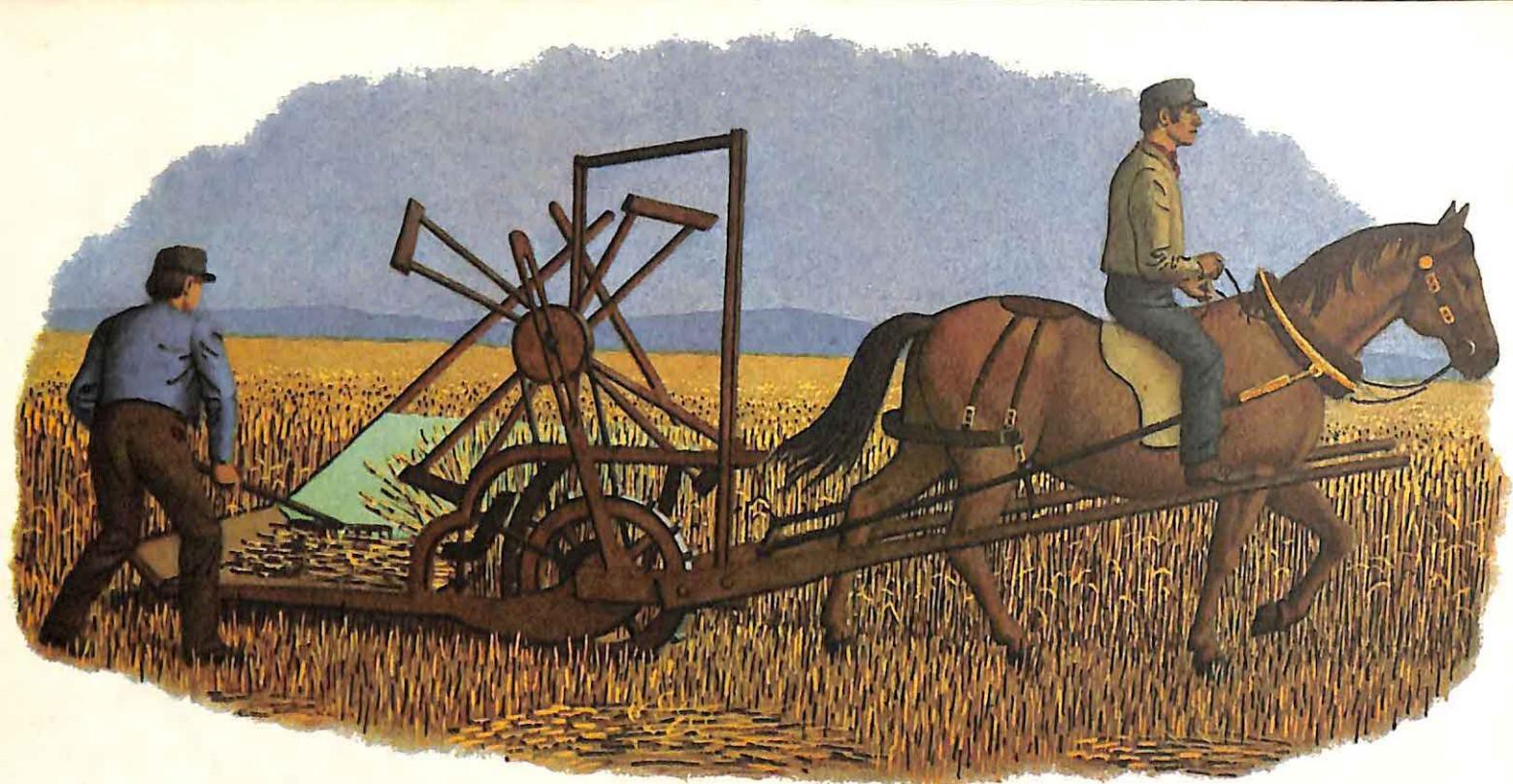


RYE



MAIZE





Speeding the Harvest

As more land was sown with wheat and the yields became heavier, the task of reaping the harvest became a mighty problem for the farmers. Even though their farm labourers toiled from dawn till dusk, swinging their scythes and tying and stacking the sheaves, it must sometimes have seemed that the work would never be finished. Often, too, the slow progress of the reaping was halted by bad weather and part of the crop would be damaged before it could be gathered in. The farmers longed for a machine that would speed the harvest....

One of them was Cyrus McCormick, the young son of an American farmer. He determined to perfect a machine that

would cut the corn in a fraction of the time taken by the age-old methods. After many trials he succeeded, and used his machine to reap its first harvest in 1831. In 1847 McCormick opened a factory in Chicago and in fourteen years sold 23,000 McCormick Reapers to American farmers.

Another great stride forward in the progress of bread-making came with the introduction of the steam-driven steel roller mill which was able to grind corn faster and into much finer flour than the stone-mill. A pioneer in the use of this revolutionary new method of milling was Joseph Rank, the founder of what is now the largest and most up-to-date milling business in our country.

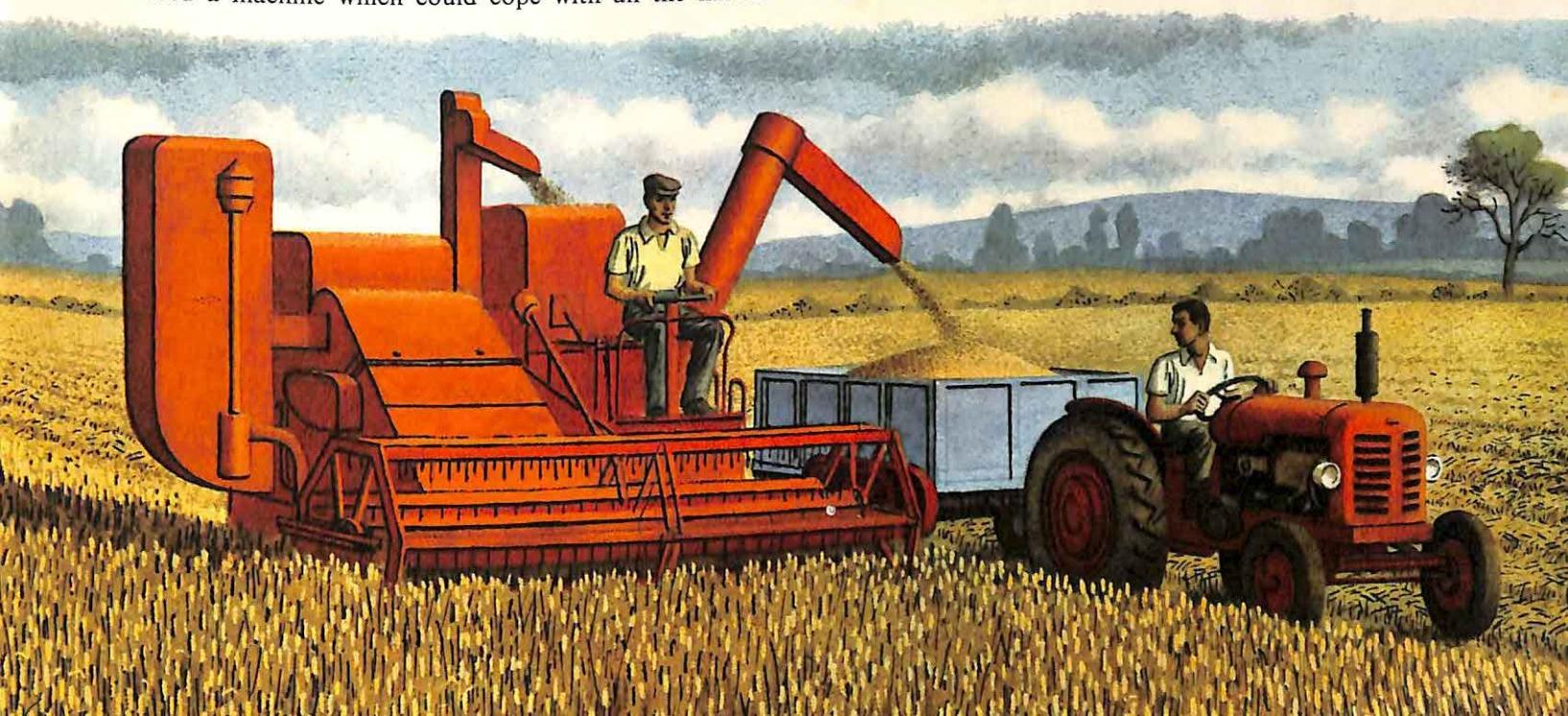
A far cry from the scythe

McCormick's Reaper, seen on the left, could only cut the corn: the wheat stalks had to be raked by hand off the platform at the rear of the machine and tied into sheaves later. The next type of machine, the sail reaper, both cut the corn and collected it into sheaves. Then came the binder, which cut, collected, and tied the sheaves in one operation. But even with the help of the binder the farmer still had a lot to do: his sheaves had to be stooked, then carted off to the threshing machines so that the grain could be separated from the straw and husks.

So the farmer, especially if he grew wheat on a large scale, needed a machine which could cope with all the harvest

operations from cutting right through to threshing. In time, a machine of this kind was made – the combine harvester, as we call it. This wonderful machine cuts the stalks and carries them to a threshing drum which separates the grain from the straw and chaff and sends the grain to a storage tank. As the combine harvester moves steadily and majestically through the wheatfield a trailer pulled by a tractor comes alongside and a spout from the storage tank discharges the grain into it 'on the run'.

Of course, today there are many different kinds of combine harvesters, all doing so efficiently and at great speed the work once laboriously done by men with scythes and flails.





The Master Millers

In this country much of the bread we eat, the cakes and biscuits, the home-made puddings and pie-crusts, are made from wheat milled into flour by one great company, Ranks Hovis McDougall Limited. The Rank family were Yorkshire farmers in the sixteenth century. John Rank worked a windmill for flour-milling in 1825 and his grandson Joseph, the founder of the present company, rented *his* first windmill in 1875 and did all the work of operating it single-handedly. From that modest beginning men of the Rank family have

built up one of the greatest milling businesses in the whole world.

To see how far milling has progressed since the time of Joseph Rank's one-man windmill let us look into a modern mill, such as the one shown above. Here, when the ocean-going ships dock with their huge cargoes, the grain is sucked by pneumatic pumps from the ships' hold into tall buildings called silos. Into the silos, too, mechanical elevators take the home-grown wheat as it arrives by road and rail.

Before it enters the silo the grain is weighed and has its first cleaning. It is next piped to the screen room where it is cleaned again to take away any impurities which are larger or smaller than the wheat grain. Magnets extract any fragments of metal. Next, disc separators are used to take away any impurities that are similar in size but different in shape from the wheat grains, such as round seeds and foreign cereals. Any dust or mud that is still left on the surface of the grain is washed away by violent agitation in water. Then a whizzer flings off the surface moisture. The grain is dried and stored ready for milling.

If you were to bring down a hammer on to a grain of wheat, the heart of the grain – the white floury inner part – would be so crushed and powdered into the rest that it would be almost impossible to separate it again. Because the miller depends on this ‘heart’ for his fine white flour, he has to take great care that this does not happen. So the ridged metal rollers that break down the grain have to be set so delicately that, instead of crushing it, they shear it open to allow the inner white portions to come away from their outer brown skins. This first grinding is only one of *more than forty* processes which the grain passes through in the mill. There are ‘plansifters’ that swirl the wheat fragments through a series of graded sieves whose meshes gradually become finer until the last one is of nylon; there are ‘purifiers’ that use currents of air to lift away the grain skins from the heavier white parts; there are ‘reduction rolls’ which give the white parts yet another grinding, and ‘centrifugals’ which pass the flour particles through a fine silk mesh.

So after the grain has ‘been through the mill’ in these and other ways it emerges as flour for men and as bran for animals. The flour is then automatically filled into sacks or into huge bulk containers on lorries to be delivered to the baker, the biscuit-maker, and to the factories that pack it into small bags for sale in the shops.

The Bread comes Home

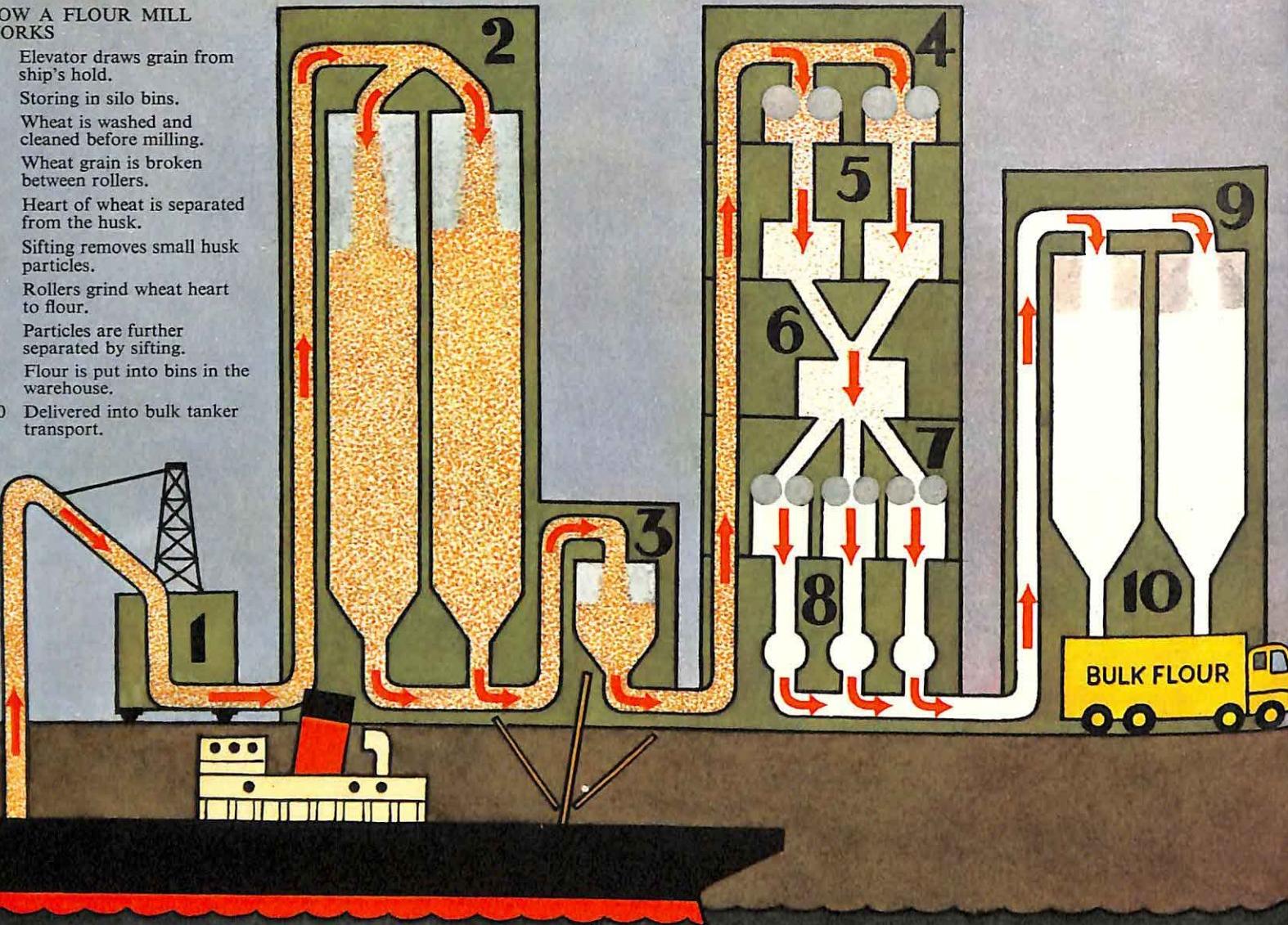
Until recent times most bakeries were very small businesses. The baker and his assistants made their bread at night in the bake-house behind the shop so that the loaves could be sold across the counter by the baker’s wife next day. Then, about fifty years ago, machines were developed which quickly brought about a great change. Now the mixing, the kneading and other processes of bread-making were done by efficient, tireless mechanical power. The smooth-running machines took over the tasks that man had laboured by his own muscle-power to do for thousands of years before.

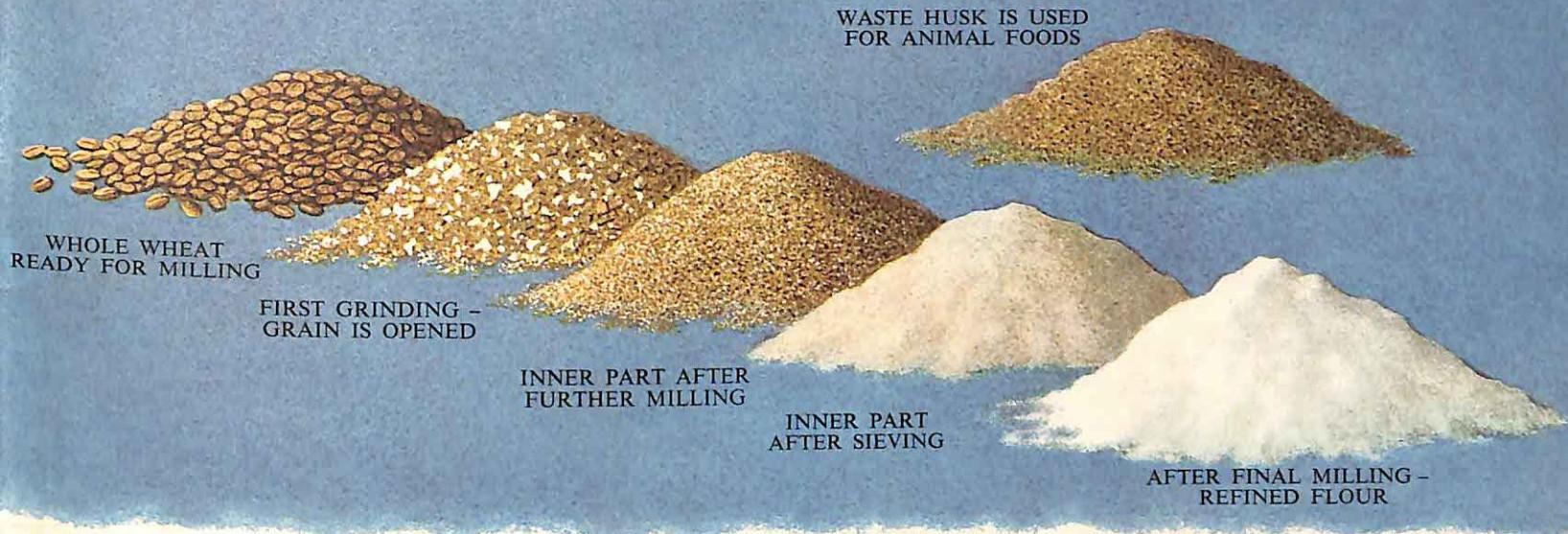
Now the growth began of the great modern bakeries we have today. Here, the actual process of bread-making has changed very little since earliest times, but now the machines are able to produce our bread in the cleanest and most wholesome conditions and in very large quantities indeed. The speed and sureness of modern methods help to keep up a high standard of quality and to keep down the price we pay. (In Britain our bread costs less than almost anywhere else in the world.) Yet the craftsman still has an important place alongside the scientist and the technologist in a modern baking plant. He helps to produce many different kinds of bread and to make sure that each of them is nourishing and good-tasting.

In an up-to-date bakery such as the one shown in our

HOW A FLOUR MILL WORKS

- 1 Elevator draws grain from ship's hold.
- 2 Storing in silo bins.
- 3 Wheat is washed and cleaned before milling.
- 4 Wheat grain is broken between rollers.
- 5 Heart of wheat is separated from the husk.
- 6 Sifting removes small husk particles.
- 7 Rollers grind wheat heart to flour.
- 8 Particles are further separated by sifting.
- 9 Flour is put into bins in the warehouse.
- 10 Delivered into bulk tanker transport.





picture on the next page, ingenious machines sift and blend the flour; mix it with water, yeast and salt; knead the dough and mould it into loaves so that the travelling ovens can bake it. (They are called travelling ovens because the bread travels through them, going in at one end as dough and coming out at the other end as warm, golden loaves.) Fast delivery services bring the bread to the shops as fresh and appetizing as if it were baked at home.

After the second world war many separate bakers were brought together in one large group called British Bakeries Limited. This is now one of the biggest bakery companies in the United Kingdom today.

So it has come about that the master millers and the master bakers have joined forces to transform the golden grain of wheat into the bread which is so much a part of our daily lives . . . And so this story of bread that began with Stone Age Man has stretched out into our own times. Yet the story is still only a slice of its life – for who can imagine that there will ever be a time without bread, bread-makers, and bread eaters?

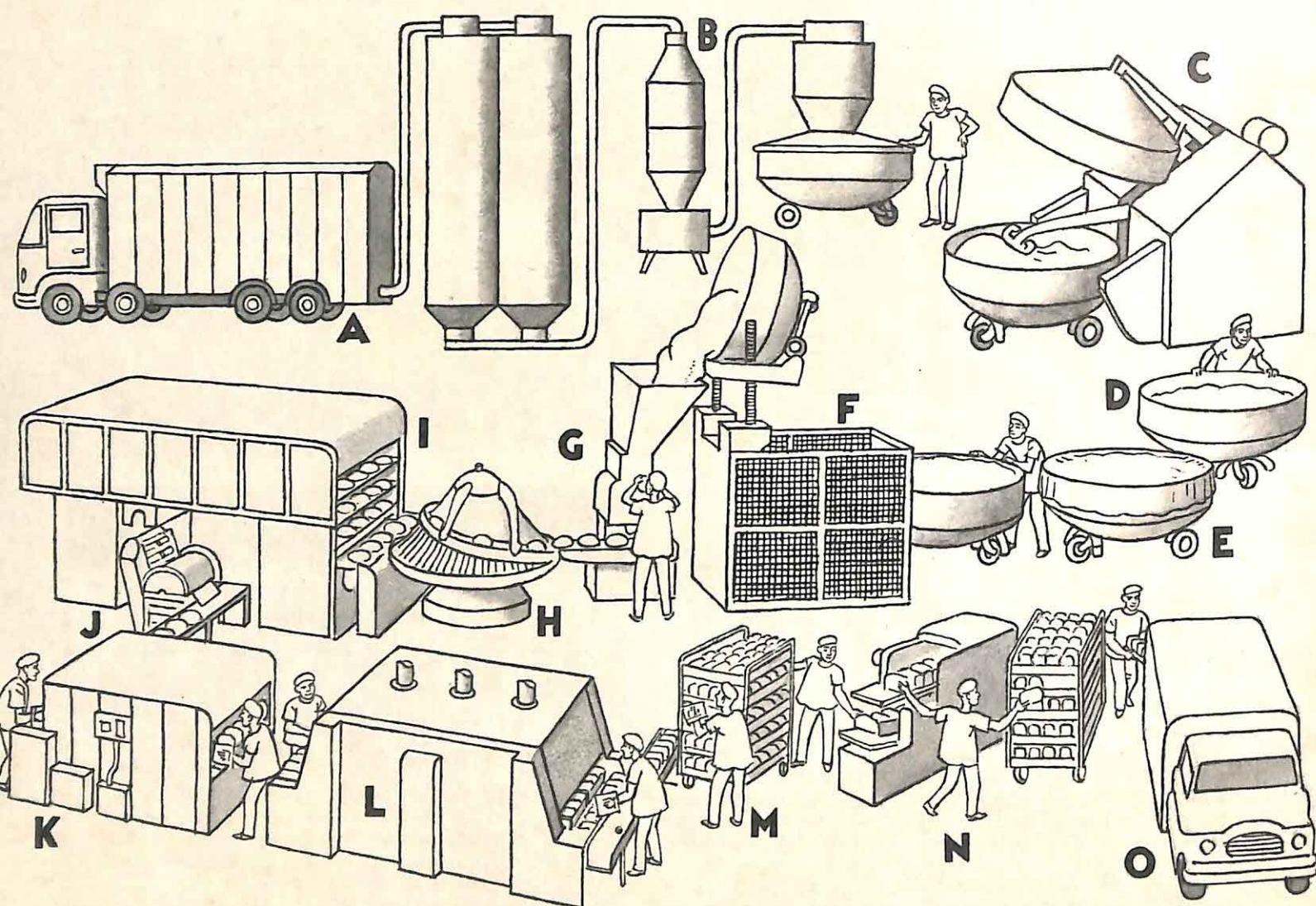
Bread, the Essential Food

The bread and flour eaten by the average person supplies –

- 21% of the Energy
- 23% of the Protein
- 21% of the Calcium
- 25% of the Iron
- 27% of the Vitamin B₁
- 23% of the Niacin

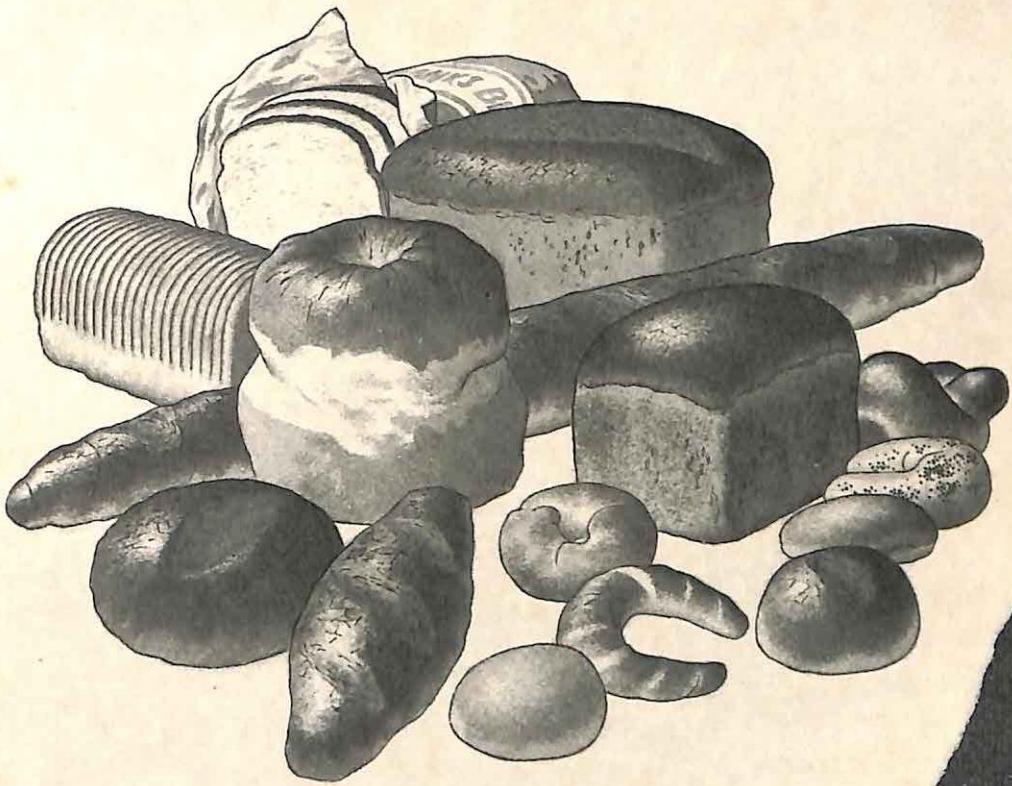
} of the body's daily requirements

Nearly one-quarter of the nourishment we need to keep us healthy comes directly from the bread and flour we eat.



HOW A BAKERY WORKS

- A Flour, delivered to the bakery in 16-ton bulk wagons, is stored in deep bins to be drawn as needed.
- B Flour sifting and automatic weighing.
- C Flour, water, and yeast, all accurately measured, are mixed by this machine.
- D A bowl of newly-mixed dough.
- E The dough is left to ferment in a cloth-covered bowl.
- F A lift raises the bowl and the dough is automatically tipped into the divider.
- G Dough is divided into raw loaves.
- H The pieces are shaped by the conical moulder.
- I Raw loaves 'rise' in the pockets of the first prover.
- J Raw loaves pass through the moulder, which shapes them to fit the baking tins.
- K Placed in tins, raw loaves 'rise' again in the final prover.
- L Raw loaves pass through the oven at a controlled temperature and speed to emerge as fresh baked bread.
- M Newly-baked loaves are stacked on the trays of trolleys to cool (or go through an automatic cooler).
- N Some types of loaves are sliced and wrapped in this machine.
- O Bread is delivered by a fleet of vans.



The importance of Bread as Food

Bread and flour are very important parts of our daily diet. A recent Government survey shows that on average we each eat about 45 oz. of bread a week: that is, one large loaf and one small loaf. The survey also shows that we get large amounts of some of the most essential parts of our diet from bread and flour.

Modern bakeries give us a very wide choice of different breads to eat: white or brown or wheatmeal; farmhouse or cottage; currant, rye, milk, malt, French or Vienna bread - and many other varieties.

The Story of Bread

